San Francisco Bay Mercury TMDL Meeting
Record of Public Comments/Questions
Regional Water Board
Oakland, CA
July 2, 2003

(August 25, 2003)

I. Background

The San Francisco Bay Regional Water Quality Control Board (RWQCB) is currently developing the Total Maximum Daily Load (TMDL) for mercury in San Francisco Bay. The RWQCB held a public meeting from 10AM to noon on Wednesday, July 2nd at the Elihu Harris Office Building to present the TMDL Project Report for mercury in San Francisco Bay. Approximately 60 representatives from public agencies, environmental organizations, industry, environmental consulting firms, publicly owned treatment works (POTWs), and other members of the public attended.

The goals of the meeting were to (1) present the findings and recommendations of the project report, (2) solicit specific, constructive feedback on the report in preparation for the Basin Plan Amendment stage and (3) update the public on next steps.

Dyan Whyte (RWQCB) opened the meeting by introducing key staff and reviewing the San Francisco Bay Mercury TMDL process to date. Bill Johnson (RWQCB) then presented an overview of the TMDL analysis. Richard Looker (RWQCB) followed with an overview of the proposed implementation plan, including an explanation of the concept of adaptive implementation. These presentations were followed by a question and answer period. RWQCB staff also invited public comments. The public was encouraged to submit comments in writing by July 14, 2003.

A copy of the presentation is currently available on the RWQCB website at www.swrcb.ca.gov/rwqcb2/sfbaymercurytmdl.htm. Questions and answers from thediscussions on July 2 are summarized below, and this record will also be available on the web site. ***Please note: this document is not an actual transcript of the meeting, but rather a summary of the question and answer session.*** We tried to capture the speakers' comments and questions as accurately as possible. These comments will be used to inform the next step in the TMDL process: proposed regulatory action in the form of an amendment to the Water Quality Control Plan for the San Francisco Bay Basin.

II. Next Steps

RWQCB is currently receiving and reviewing comments from the July 2nd public meeting. RWQCB staff also reviewed all written comments and prepared a document describing the RWQCB's response to each. Using the project report as a starting place, RWQCB is also drafting a Basin Plan Amendment and supporting staff report. When finished, the package will undergo scientific peer review. Then, it will be circulated for a formal 45-day public comment period. After responses to these comments are prepared, RWQCB will formally consider adoption of the Basin Plan Amendment.

III. Summary of Questions and Answers

Sujoy Roy, Consultant TetraTech, Inc.: I have read the report and feel the Regional Board did a good job. I do have one comment. The 2000 report had a discussion on the uncertainty of various sources, but this new report does not talk specifically about uncertainty. You also include a 5-year timeframe for examining progress. Is there a specific reason for five years? If there is a great deal of uncertainty as mentioned, my guess is that this time frame may not be sufficient to notice progress given the natural variability in the system. Is this something you could address in the report?

Bill Johnson response - Where we had information, we tried to provide as much information as possible regarding uncertainty in loads and source assessments. Where we could, we tried to give ranges, for example, for atmospheric deposition and Central Valley loads. But if you think about how source assessment values are really used, even if we better characterized the uncertainty, we would not necessarily carry it forward in the analysis. In some cases, like bed erosion, we have so little data that we do not even know how to quantify uncertainty. We're basing our figures on assumptions and drawing inferences from the data we have, and not trying to overreach. However, this is a good point and this issue of uncertainty does have a place. I just don't know how far we need to go with it.

Richard Looker response – Regarding the 5-year timeframe, you are correct, it may be difficult to discern noticeable changes in the conditions due to the reduced loads after only 5 years. However, we may find some information that informs whether actions need to be changed. There are many reasons for the 5-year review apart from understanding changes in loads. In those five years, there will be many new studies, which may provide good new information on issues of bioavailability, load allocations, and targets. I agree, it may be difficult to determine whether the loads or conditions have changed in the first five years. However, we may get information that helps us determine whether an action is having an effect in a certain water body.

Sujoy response – I hear your points, and I think that a discussion of uncertainty does have a place in the final report. When you read this document, and you are not familiar with the history, you think everything is known with a good deal of precision and that is not the case as noted in the report from 2-3 years ago. You don't need to quantify the uncertainty, there just needs to be a description of it so the reader understands that it exists.

Joanna Woolman, Waterkeepers

Leo O'Brien wanted to be here, but he could not so I will be asking several questions on behalf of Waterkeepers. First, Waterkeepers is concerned about the proposed timeline in the report. The stated goal of the Clean Water Act was to stop all discharges by 1983. As such, we would like to see a shorter timeframe than a 120-year recovery rate. If that means taking more extreme measures, we would support those as necessary.

Bill Johnson response – I would like to clarify that when we talked about the recovery curve, the underlying assumption is that the load allocations are being phased in over 20 years. In fact, the reductions proposed are quite substantial and realistic. For example, a major source of mercury comes from legacy sources in the Guadalupe River. If you look at the

time it will take to complete and implement a TMDL for sources in both the Guadalupe River and Central Valley, those processes will take a while. In addition, we have proposed significant reductions for urban runoff, and it is not clear at this time how this will be implemented. It is going to take some time to figure out exactly what the stormwater agencies can do to reduce sources of mercury from urban runoff.

Joanna response – Waterkeepers expected there to be specific allocation for specific entities. The categorical approach taken in the report is, in our opinion, not based on the definition provided in the CFR [Code of Federal Regulations] in terms of what to do for load and waste load allocations. The regulations indicate that the Regional Board should allocate specific load allocations to every known and controllable source (i.e. each wastewater and stormwater entity). How do you expect to allocate this in the future and when will it be done?

Richard Looker response – The report provides allocations for each specific source.

Joanna response – Let me clarify. There need to be allocations not just for Central Valley itself, but for every known and controllable source in the Central Valley.

Bill Johnson response – We know this is an issue for stormwater and wastewater and that we need to break down allocations for each entity that discharges to the Bay. We have not heard this idea used with regard to specific sources in the Central Valley. Most sources in the Central Valley contribute to tributaries, which then contribute to the Bay. My guess is that these sources are not subject to the same requirement, but I will consult our legal staff.

Joanna response - How will allocations from other watersheds get regulated? For example, if you are setting an allocation now for mercury in the Bay and another TMDL is done later for another water body, which enters the Bay, is there a guarantee that the numbers will match? Our understanding is that the State of California is responsible for setting a TMDL in the Bay and if this goes outside Region 2's jurisdiction, it needs to be coordinated somehow because you are responsible for controlling the situation here.

Bill Johnson response – Let me address these two questions. The load allocations proposed in this TMDL will result in extra requirements for subsequent TMDLs in other rivers/water bodies that feed into the Bay. For example, in addition to everything else that Carrie Austin has to deal with as project manager of the Guadalupe River TMDL, she will have to address our TMDL regulations as well to make it consistent. For activities outside our jurisdiction, we can only take account of them, but we cannot control them. This is the role of the State Board. Once a Region 2 TMDL gets approved at the State Board level, then the Central Valley is required to control its levels to meet those standards.

Joanna response – I have a follow-up question on the known sources. Do you anticipate having specific loads for POTWs that can be measured? You also mentioned that TMDL load allocations do not appear feasible for local sources of atmospheric deposition. However, Waterkeepers, and Leo in particular, feels that local sources of atmospheric deposition also should be allocated a specific load. There is sufficient information available about these sources and it should be included even if it means coordinating with the Air Boards.

Bill Johnson response – Air deposition is allocated a load but we have not asked for a reduction. The Regional Board has worked with the air district and discussed ways to reduce atmospheric loads. Unfortunately, we have not yet found a good way to reduce these loads. The implementation plan does explore these options, however, and we have not eliminated it as an option.

Richard Looker response – There is a distinction between how air sources and water sources are quantified as a source of mercury to the water. It is not currently possible to measure what percentage of mercury coming out of a stack is going directly into water. Therefore, even setting aside regulatory authority, we do not have enough information or strong enough basis to set a load allocation at this time.

Joanna response – There is language in the report about dischargers being able to use a trading program in the future. However, the language is not definite enough and seems rather ad hoc and unclear. Waterkeepers feels strongly that there should be a more specific outline of the trading program before the report is issued.

Richard Looker response – So do we. The trading program does not exist now, a great deal must still be worked out. In other areas where such trading programs are underway, the loads and allocations are clear and definite, so you can establish the equivalence of a discharge and you can know that you are trading "beans for beans." However, with mercury, the issue of methylation makes it more difficult to work out a system. We will appreciate any contributions you have to aid in development of such a program.

Joanna response – I have one final question from a legal perspective. The CFR states that the implementation plan allocation numbers need to match the effluent limits. We want to be sure that the proposed waste load allocations are identical to the permit limits. We feel our ideas are different from those of the Regional Board about what being "consistent with" means in this regard. When you say "consistent with," we want to be able to count on those numbers being the same. The way it is currently being done by use of a categorical approach makes that guarantee impossible.

Tom Mumley (RWQCB) response – The Code of Federal Regulations states that the water quality based effluent limits shall be consistent with permit levels. Clearly, if mass limits equal the mass load allocations, then they meet the consistency test. However, the code states they must be consistent, not the same. We have discussed this with our legal counsel and we know we are somewhat on the cutting edge here, but we have been applying this approach to urban runoff for years. What we are proposing is an approach we think will work, but there are few case studies for attorneys to refer to.

Ellen Johnck, Executive Director of San Francisco Bay Planning Coalition: The Coalition represents a broad spectrum of organizations around the Bay that make use of the bay for different reasons that required permits. I have not prepared formal comments for this meeting, but the Bay Planning Coalition has a committee that will be doing so. However, I want to say a few words. In general, great progress is being made and we are pleased and appreciative of the fact that the process has been open. The "how to's" and explanation of "this is what we expect" has been very helpful. Regarding source breakdown, the maritime industry, which moves over 5 million cu yards/year of dredge materials to enable ships to use the Bay, was pleased to see that their efforts are considered a net loss in the source

analysis. I have not yet read the report, but would like to understand better how the Regional Board arrived on the calculation of bed erosion from geologic perspective and how it relates to adaptive management. I would also like to acknowledge the focus on creating and restoring the wetlands in the Bay. This is a hot topic now, conditions are changing, and there is the potential problem of mercury methylation in that. I can't emphasize enough the importance of adaptive implementation here.

My second point is about the San Francisco Estuary Institute. You didn't say anything in this slide show about the institute's efforts. Their monitoring program is funded entirely by permit applicants and dischargers. We think the studies that have been developed will be critical to development of TMDLs in the Bay. You mentioned adding conditions on permits to study re-suspended sediments and its effects on fish etc. However, the SF Estuary Institute is already doing similar research. There should be cooperation so that there is not duplication and wasted effort. Our main concern is that what you are allocating is consistent with permits that already exist.

Bill Johnson response – We'll try to address each of your comments. The last section of the report does contain numerous references to SFEI studies and the regional monitoring program. We relied on many SFEI studies. On the subject of requirements being added to dredging permits, we need more information before we propose additional permit regulations/conditions. We acknowledge that at some point, we may have information that we will need to incorporate into the permit, but not now. We need to understand the process of methylation of wetlands before we deal with regulation of them.

Regarding your first question, the bed erosion number has a lot of uncertainty because not a lot of studies have been done. USGS has conducted studies in Suisun and San Pablo Bays. These studies tell us how the bathymetry of these bays has changed over time. From that you get how the depth is changing and the net mass that has eroded over the years. From that you can calculate an average per year for sediment erosion.

We also looked at 2 cores collected from Grizzly Bay and San Pablo Bay. Basically, the information we have in these two areas is all that is available. From these data, we estimated the depth-weighted average mercury concentration for each of the two cores and averaged them together. For current conditions, we used the concentrations in the first 1.3 meters of sediment and applied those to sediment erosion estimates from USGS. For future conditions, we looked at concentrations over 1.3 meters down, where the mercury concentration drops off, and applied the depth-weighted average to the entire net erosion per year. We recognize that annual erosion of the floor may change over time, so the mercury load will change over time too.

Jim Delorey, US Army Corps of Engineers: I have a list questions. First question is will the stakeholders have access to the model for the recovery curves?

Richard Looker response – Yes, we can send it to you.

Jim Delorey response – The reference list includes numerous internal Water Board documents – can you post them or otherwise make them available?

Dyan Whyte response – We can email you the ones you want. As a general rule, we will make them available to anyone who requests them. The ones we have available electronically, we can email to you. For the larger hard copies, we will make them available to be copied.

Jim Delorey response – We're not sure about the purpose of active layer discussion. We don't see it as playing a part in the report.

Bill Johnson response – We used this assumption in a couple of places. In our modeling, the depth of the active layer defines the amount of mercury we consider to be in the system as opposed to buried and not in the system. In the source assessment we define the active layer as 15 centimeters and we say that it is "in the box." Defining the depth of the active layer as a fixed quantity allowed us to use a steady-state assumption for sediment in the Bay. The depth of the active layer is also used to model the recovery of the Bay. The deeper the active layer is assumed to be, the longer it will take for the bay to recover.

Jim Delorey response – The Corps thinks you may not have been consistent in applying that principle. We will send in comments about this by email. Now please show on the screen the spreadsheet model. The model starts at year zero when you implement the TMDL, however, if you follow the curve backward, it does not reflect my understanding of what's happened in the last 25 years in terms of mercury in the Bay. Do have some measurements of the current or natural state of the system? The curve is quite steep at year zero, which would indicate that there have been significant decreases in the past years, which is not my perception.

Bill Johnson response – The model is forward projecting, not historical. If we had data of loading in the past, we could have included it. Perhaps if we did have that data and had included it, the model might have reflected your perception of the past. However, we did not have that data, so we only have a forward-looking model based on the information we do have. We weren't seeking to answer questions about the past. It didn't serve our purposes, so we didn't do it. If you think there is any information we haven't included which we should have, please include this in your written comments so we can look at it.

Jim Delorey response – You mention that every 5 years you will have a review. Is that long enough given the natural variability and tidal, wind and wave cycles to accurately measure mercury?

Richard Looker response - We don't plan to completely review the TMDL every 5 years and redo the calculations. However, we will take into account new information such as condition and load changes. Perhaps 5 years may be too short to expect conditions or loads to change, however, it may be just right in terms of changes in science (regarding monitoring, or knowledge of cycling).

Jim Delorey response – I presume measurement will be ongoing and will not just take place every five years, however, we're more concerned about how changes may be interpreted. People could make decisions based on levels that appear to be rising before they fall.

Dyan Whyte response – Good point. We are not expecting to see sharp changes and we're working with the RMP [Regional Monitoring Program for Trace Substances] to evaluate ways to monitor trends in the Bay. There are a number of avenues to explore. For

instance, we may not see absolute change in water column concentrations, but there may be changes in sediment from the Guadalupe River, which may reduce concentrations in benthic organisms, which may have a positive effect on clapper rail eggs. We need to look at both fish and what fish consume. We may see a response in prey before a response in predators. Biota will give us clues that connect actions to results. The RMP is an avenue to look at ways to explore this.

Jim Delorey response – Yes, you have made some wise choices with regard to bird and fish eggs as targets, but this is a long-term issue and will not be solved quickly as was suggested earlier.

Dan Russell, US Fish and Wildlife Service (USFWS): I have not read the report in detail, but USFWS will have comments by the 14th. We think it is commendable to have bird and fish egg targets but a bird egg target of 0.5 ppm [parts per million] is the lowest effect number from current lab studies. This is fine if you're not looking at listed species, but setting the target at that level means there will be effects. At 0.5 ppm, we would expect to see reproduction effects. Therefore, for listed species, this level needs to be lower. This number comes from a 1971 paper on pheasants and is typically cited in the literature as a criterion for mercury.

Bill Johnson response – We have been thinking about this as well. Your point is (1) we don't have a no-effects level, we have a lowest effects level; and (2) we don't know if the studies shown on pheasants are comparable to clapper rails. If you have any results you can give us that would be helpful.

Dan Russell response – We have a scientist who has determined that the average concentrations of mercury in clapper rail eggs in the bay is 0.5 ppm (this is lower than your 0.8ppm estimates) and he feels this affects the eggs.

Tom Mumley response – Given the extended recovery time, knowing what the exact no-effects level is not so critical at this time. We know we need to pursue actions to get us toward these levels while we continue to study what the exact level we need to achieve should be (whether it is 0.5 ppm or 0.4 or 0.3). This is a good example of the adaptive implementation philosophy. Studies are occurring and we will seek info about what a no-effect level on endangered species is. Since we cannot test the endangered species, it does make it more difficult. We need a body of data that helps us predict with more certainty, so any information you can give us that is constructive would help. We certainly want to avoid any ESA [Endangered Species Act] barriers as this creates delays, which no one wants.

Dan Russell response – I agree with your thoughts, however, once you set a target in a regulatory document, it becomes institutionalized. You can address this in a number of ways in the document by adding uncertainty factors to lower the targets or otherwise revising how the target is expressed. We can work with you on this.

Michael Stanley-Jones, CA Clean Water Action/Clean Water Fund, Environmental Justice Coalition for Water, Sierra Club – Loma Prieta Chapter- I just wanted to start by reporting that the Sierra Club – Loma Prieta Chapter's Executive Committee voted

unanimously last night to make bay protection one of its two highest priorities. As such, we will be monitoring mercury loading and the Cargill Salt Pond restoration efforts and looking at such issues as protection of birds and fish.

Today I want to focus on the question of the Central Valley's contribution. How do the allocations proposed in this implementation plan affect other TMDLs and to what extent is the success of this plan based on the successful implementation of other plans for areas beyond this region? For example, the San Benito County Board of Supervisors voted this spring to request the Regional Board address New Idria contributions, which are highly variable depending on rainfall. So how does this plan govern what's outside the Regional Board's boundary and how other TMDLs work together?

Richard Looker response – The regulatory mechanism is that all TMDLs get approved by the State Water Board. When we adopt TMDL targets as regulatory requirement that apply to sources in Central Valley reductions, this means that they not only have to meet their Basin Plan standards, they must also need to meet our Basin Plan requirements.

Michael Stanley-Jones response – I am asking because our analyst noted that the proposed plan depends heavily on the success of Guadalupe River reductions and less so on the Central Valley. We want to know if this choice was based on the amount of regulatory control you felt you had over the Central Valley.

Richard Looker response – No, it was not. The success of our TMDL is based on Central Valley meeting the proposed sediment target, and the same is true for the Guadalupe River. It has nothing to do with enforcement.

Michael Stanley-Jones response – Clean Water Action and the Environmental Justice Coalition for Water think it is important during this first phase that you show successes that have happened from specific sources. Early implementation is important for public understanding and support for this process, as well as for political understanding and support. It will be a disaster not to have successes that can be shared after 5 years.

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